

**Amendments to the Claims:**

The listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1. (Currently Amended) A method of identifying the best matches or sets of matches between a query item and an item or items from a data set, the method comprising the steps of:
  - (i) providing a data representation for each item in the data set;
  - (ii) providing a query representation of the query item;
  - (iii) defining a transformation space;
  - (iv) for each of a number of regions spanning the entire transformation space, determining an upper bound to the probability of a global match between the query representation and a data representation under any global transformation in the region;
  - (v) automatically determining a global threshold probability based on the upper bound determined in (iv);
  - (vi) comparing the upper probability bound of each region with the global threshold probability; and
  - (vii) determining regions having an upper probability bound greater than the global threshold probability, so as to identify solution regions;
  - (viii) sub-dividing the solution regions into further regions which span the solution regions;
  - (ix) determining a new upper bound to the probability of a global match between the query representation and a data representation under any global transformation in the further regions;
  - (x) determining a new global threshold probability based on the new upper bound; and
  - (xi) determining new solution regions.
2. (Cancelled)
3. (Currently Amended) A method as claimed in claim 1[[2]], including the step of iterating the further method steps (viii) to (xi) of claim 2 so as to identify the solution region

containing the best matching solution or to identify a set of solution regions containing a set of best matching solutions.

4. (Original) A method as claimed in claim 1, in which the data representations are topological representations of the data items and the query representation is a topological representation of the query item.

5. (Original) A method as claimed in claim 4, in which the topological representation of the data items and query item comprises a set of node measurement vectors, each node measurement vector being associated with a node of a topological arrangement of nodes defining the items.

6. (Original) A method as claimed in claim 1, in which the upper bound is determined using Bayesian probability theory.

7. (Currently Amended) A matching engine for identifying an item or items from a data set, the engine comprising electronic data processing apparatus including:

a memory storing a data representation for each item in the data set;

an input for inputting a query representation of the query item; and

a processor configured to which includes means for

defining define a transformation space,

means for generating generate a number of regions of the transformation space spanning the entire transformation space,

means for determining determine for each region an upper bound to the probability of a global match between the query representation and a data representation under any global transformation in the region,

means for determining determine a global threshold probability based on the upper bound,

a comparison means which compares compare the upper probability bound for each region with the global threshold probability,

means to identify solution regions having an upper probability bound greater than the global threshold probability,

sub-divide the solution regions into further regions which span the solution regions.

determine a new upper bound to the probability of a global match between the query representation and a data representation under any global transformation in the further regions,

determine a new global threshold probability based on the new upper bound;

determine new solution regions; and means to

store an identification of a match between the query item and the item of the data set in a memory.

8. (Original) A computer program which when running on a computer carries out a method as claimed in claim 1.

9-10. (Cancelled)

11. (New) A computer readable medium bearing computer program code providing instructions causing a computer to carry out the data processing operations of:

- (i) provide a data representation for each item in the data set;
  - (ii) provide a query representation of the query item;
  - (iii) define a transformation space;
  - (iv) for each of a number of regions spanning the entire transformation space, determine an upper bound to the probability of a global match between the query representation and a data representation under any global transformation in the region;
  - (v) automatically determine a global threshold probability based on the upper bound determined in (iv);
  - (vi) compare the upper probability bound of each region with the global threshold probability;
  - (vii) determine regions having an upper probability bound greater than the global threshold probability, so as to identify solution regions;
  - (viii) sub-divide the solution regions into further regions which span the solution regions;
  - (ix) determine a new upper bound to the probability of a global match between the query representation and a data representation under any global transformation in the further regions;
  - (x) determine a new global threshold probability based on the new upper bound;
- and

(xi) determine new solution regions.